

IAFC Report

Performance of the Fire Service
during the 2003 Northeast Blackout
and the Implications for
Critical Infrastructure Protection



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Report on the Performance of the Fire Service during the 2003 Northeast Blackout and the Implications for Critical Infrastructure Protection

Background

On August 14, 2003 rural, suburban and metropolitan communities over 9,300 square miles in eight states and Canada went dark in a matter of minutes. In a number of cities, the water supply faded with the light. Under daunting circumstances, fire fighters responded to a wide array of calls, from 91,000 9-1-1 calls in New York City, to calming the fears of residents in small towns across the nation who, even though not directly affected by the outage, looked to the fire service for a reassurance of safety.

Survey and Research

The International Association of Fire Chiefs (IAFC) invited its members to participate in a survey regarding the impact of the power outage on the local fire department. Of the 8,350 members invited to participate in the web-based survey, 899 (11 percent) responded during a three-week period. The respondents represented career, combination and volunteer departments and municipalities of various sizes.

Further research into the response of the fire service was conducted by personal interviews, online research and a review of media coverage.

Findings

All research indicates that the fire fighter response to the Northeast power outage was a resounding success. That is not to say that the success was not hard-won; a successful response is not synonymous with an *easy* response.

Those that faced multiple fires, dangerous water shortages, communication system problems and other critical disruptions to their normal courses of action, prevailed in protecting their community through their skill, resourcefulness and dedication to those around them. Even in communities that reported no serious problems, fire departments faced overwhelming numbers of emergency calls and other emergency duties that consumed time and resources.

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In many cases, the overall response exhausted the human and physical resources of many departments in both large cities and small communities. This underscores the importance of providing resources that enable local fire departments to respond to wide-spread events – regardless of a terror threat. It is inexcusable to assume the preservation of public safety in a natural or accidental disaster is not as important as public

safety in a terrorist event. Furthermore, it is shortsighted not to see how preparedness in daily operations leads to emergency preparedness, or to see how vulnerabilities in daily operations make communities vulnerable to attack.

The performance of the fire emergency service during the Northeastern and other large-scale power outages reveals four major findings that directly correlate to the fire department's ability to protect its community and the national infrastructure in a national emergency.

1. Successful daily operations translate into successful emergency response with proper planning and training.

During power outages, local fire departments are called upon to undertake an extraordinary amount of duties simultaneously. The survey results are remarkable in that despite the seemingly overwhelming list of services fire fighters and EMS personnel provided, they are presented by respondents in a manner that reflects the routine. Research noted frustration with the sheer volume of calls – particularly false alarms that drew from much needed resources – but not with the services themselves. The list of more than 30 specific duties mentioned in the survey (and echoed throughout media reports) demonstrate that skills, practice and relationships acquired during routine, daily operations lead to a highly effective response in large-scale emergencies.

It is evident from the research that emergency planning was in place in many response areas. Mutual aid plans, contingency plans for power, water and communications, the development of standard operating procedures for supporting the wellness of the community, and emergency training enabled fire and EMS personnel to quickly adapt their normal operating procedures to successfully address a major crisis.

Successful operations in power emergencies were most often credited to planning, training and utilization of basic skills practiced every day during routine operations.

While many communities are building partnerships with neighbors, a handful of communities implemented community-wide standards that allow a community to be self-sufficient for two or three days, in the event that help could not arrive immediately. While this is positive progress, getting to this level requires time and resources that many departments cannot afford and does not address the possibility that large-scale

attack could require a much longer wait. Many of those who had not been affected by large-scale power outages indicated their intention to review or upgrade their emergency plans and incorporate some lessons learned from the recent experiences of others in the emergency service community.

2. Emergency preparedness is a community-wide effort.

The most positive experiences in the research came from fire departments that were involved in a community-wide planning and response process. Fire departments must neither be excluded from emergency planning nor left to take on the responsibility alone.

A number of survey respondents noted, and media coverage supported, that the fire department was either the emergency management lead or was actively involved in emergency planning and the local EOC. Survey respondents also reported their positive pre-event relationships with federal, state and other local and private entities in their jurisdiction allowed for a more manageable emergency response.

The efficiency that is presented in these stories of cooperation stand in stark contrast to the frustration presented by departments that were not included

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in the planning process, or the loss of precious time and resources when others were ill-prepared.

While some survey respondents reported that local government facilities could have been better equipped, the harshest criticism in this area was toward private industry. Many respondents noted the lack of preparedness in both equipment and

planning by the private sector, resulting in a drain on the fire department's resources and a danger to the community. Several comments noted their local utility company's repeated unwillingness to share risk assessments and contingency plans with emergency service personnel.

3. Equipment and personnel needs must be funded properly in order to safeguard the community and the nation.

The lack of funding for routine and disaster operations of the fire department is the most evident finding of the survey. Among the most repeated comments:

- an overwhelming number of fire stations do not have auxiliary power;
- many stations with auxiliary power do not have sufficient power to meet the needs of a modern emergency service department;
- supplies, equipment and personnel that fall victim to municipal budget cuts cause an even greater hardship when resources are maximized in crisis;
- fire departments are not able to use or receive state and federal grant funds for specific types of basic equipment;
- an attitude by local decision makers that, "it won't happen here."

The inability to secure the most basic needs for emergency service is inexcusable, especially when the funds exist. Funding millions of dollars in high-tech equipment does little to serve the community when there is no generator to keep them running when power fails. A few survey respondents noted new, state-of-of-the-art stations were wired to house an emergency generator, yet were without them because of lack of funds.

There is an evident frustration that the fire service is called upon to answer so many of the communities' needs, yet they are not given the tools to respond in the most efficient manner. One respondent summed it up in a simple statement: "First to be called, last to be funded."

Policy makers at all levels of government must listen the needs of the fire service. They cannot continue to ask for increased services from the fire department while

When the Cleveland Water System's quadruple-redundant pumping stations lost power, 1.8 million Ohioans lost water and the Cleveland and surrounding Cuyahoga County fire departments needed to quickly find a water supply for firefighting. They activated the Ohio Fire Chief's Emergency Response Plan, and in one hour had the first of 33 tanker units from eight neighboring counties in place. A central, coordinated staging and dispatch area at the intersection of two interstate highways was a critical element in having all units assigned to one of 16 stations in Cleveland, and 17 station in Cuyahoga County within three hours from final notification.

The personnel that responded under the emergency plan provided the knowledge and skills associated with fire suppression using a tanker truck that the fire fighters accustomed to a hydrant system may not have. Simultaneously, the Cleveland fire fighters were providing their own skill set and knowledge of the community. Utilizing the knowledge, skills and abilities obtained during normal operations, and combining them across departments to address a given need, was an invaluable asset to a successful response.

The Cleveland Fire Department was able to respond to 12 structure fires and more than 100 small or rubbish fire before the water stations came back online.

This example illustrates the important partnership between homeland and hometown security. The Ohio Fire Chief's Emergency Response Plan was structured around emergency response and terror preparedness, not fire suppression. However the core structure of the plan, along with training and the utilization of basic skills used in ordinary operations, allowed for a flawless adaptation and response on its first use.

declining to take responsibility for the funding and resources needed to perform the function they are requesting.

Until local, state and federal decision makers understand that an investment in hometown security is an investment in homeland security and vice versa, the hands of the fire department will continue to be tied.

4. Emergency services are a critical element of the national infrastructure and must be protected as such.

The research contained more than 30 activities that fire departments engaged in to support their communities during power outages. The local fire departments also served to protect the critical infrastructure by supporting hospitals and citizens needing critical care; assisting with emergency planning at prisons; and safeguarding nuclear power plants and manufactures and labs that use hazardous materials.

More subtly are recorded the dedication and sacrifices of the emergency service personnel who, themselves, are an integral part of the national infrastructure: the inherent danger of the response, lack of food, responding to high-stress calls during successive shifts, personal financial loss for volunteers and anxieties regarding their own family's safety.

Some departments have developed ways to help fire fighters and their families during these times, such as requesting additional personnel from neighboring communities and inviting the families of fire fighters to shelter at the firehouse.

As was demonstrated in August, the fire service can and will be at the ready to ensure their communities are safe when the power fails. This is merely an extension of its ever-present commitment to serve the community and the public trust.

While these types of initiatives are helpful, support mechanisms are not an integrated piece of most emergency plans. Protecting emergency personnel encompasses a variety of issues, such as ensuring they are properly and sufficiently equipped to do their job, taking care of their families in times of crisis and providing emotional support and assistance.

Counseling is often an option immediately after an event like 9/11, but such a massive event will affect a person for the rest of his/her life. Additionally, emotional support should not be reserved for events that capture the national attention. Fire fighters are under an intense amount of stress and witness horrific scenes in their own communities on a daily basis. Allowing them to address these issues on a routine basis allows them to perform at their peak ability when they are called to respond to a large-scale crisis.

Conclusion

What fire fighters do in their community on a daily basis is inarguably linked to their response in national or large-scale emergencies. So too, is what the local, state and federal communities do on an everyday basis linked to the emergency response at the local level.

Fire fighters receive mixed messages from the decision makers in their hometowns, state capitals and in Washington. Hailed as heroes, they continue to be asked to take on additional responsibilities related to both hometown and homeland defense while the financial and professional support they need to do this successfully is often withheld.

The August 2003 power outage allows us to see clearly the dangers this presents. As a nation, we

depend on electrical power for our most basic needs – water, food, warmth, transportation, public safety, etc. The blackout is yet another reminder that it is a fragile structure that can be disrupted by accident, age, the weather or attack.

As was demonstrated in August, the fire service can and will be at the ready to ensure their communities are safe when the power fails. This is merely an extension of its ever-present commitment to serve the community and the public trust.

Yet in many cases, local legislatures cut budgets and staff, which are then quickly exhausted during a crisis; private industry refuses to create or share emergency procedures which drains much needed resources for the broader community; and federal grants geared toward public safety and homeland

security don't allow for the purchase of basic items that would serve to protect the public anytime they are most vulnerable. Such mixed messages cause frustration and mistrust that can only serve to derail the coordinated and cooperative response that is needed when critical infrastructure falls victim to an attack or other large-scale disaster.

The community, from government to private industry, must do its part to support the work of the local fire department and emergency service if it is to protect the nation's citizens and critical infrastructure. Supporting one another on local operations, planning, funding and personnel issues during the most peaceful of times leads to strong relationships and ability for all community members to meet the challenges posed by a national emergency. ✘

IAFC

IAFC Member Survey Detail

September 15, 2003

In recent years, the idea of the fire fighter as a national hero has catapulted to the forefront of our national consciousness. National media attention has focused on the fire service and its selfless efforts save others from mortal danger – and deservedly so.

But who are these national heroes? They are local men and women serving citizens who trust and believe in a fire fighter's dedication and skill, whether a news crew shows up or not. The survey reveals how deeply engrained is the public trust in the fire service by the sheer volume of individual citizens who turned to their fire department for service or support. It is that trust and the ability to face the broadest array of challenges that creates a framework for an effective emergency response – regardless of its scope or intent.

One does not need to look any further than the Northeast power outage to see a stellar example of protecting local citizens while simultaneously responding to a national-level crisis.

In order to research the depth and breadth of fire service response in the August 2003 power outage, the IAFC surveyed its members on the scope of the effect of and the fire department and EMS response to the power outages in communities across the country.

Survey Sample

Of the 8,350 members invited to participate in the web-based survey, 899 (11 percent) responded from August 15, 2003 to September 8, 2003. The respondents represented career departments (42 percent), combination departments (41 percent), and fully volunteer departments (17 percent).

Many respondents were from the areas directly affected by these power outages; others were indirectly affected by assisting neighboring communities or in preparing contingencies in the event the problem spread to other areas of the country. Other respondents contributed information of equal value from similar, large-scale power outages that occurred in the recent past due to severe weather or regional power problems.

The survey contained seven close-ended questions that allowed for additional comments, and four open-ended questions.

Extent of Power Outage

“We were without power in many areas of the city for a 25-hour period.”

Twenty percent of those who responded said their community lost power. Communities that lost power were almost equally covered by career (33 percent), combination (36 percent) and volunteer (31 percent) fire departments. Eighty percent reported that they had not lost power in the recent Northeast power outages; however, many of the negative respondents indicated similar, extensive

power loss in the recent past due to extreme weather (hurricanes, tornados, ice storms, etc.) or the rolling black-outs in California, on which they could contribute information regarding response questions.

Those who experienced a power loss averaged an eight to 12 hour blackout with some communities without power for only minutes and others for as long as a day. Many respondents reported that once initial power was restored, they continued to experience partial loss of power in parts of their jurisdiction, brief power losses and brown-outs.

A few respondents in neighboring communities reported rolling brown-outs to assist in the facilitation of getting the power back on in directly affected areas. Others experienced severe traffic congestion caused by residents of affected neighboring communities in search of food, water and shelter.

Impact of Power Outages on the Fire Department

“We received in excess of 30 calls to rescue people trapped in elevators in the first two hours of the outage.”

The number of fire departments affected by power outages closely mirrored the number of communities affected. Similarly, densely populated, metropolitan areas, such as New York, Cleveland, Detroit and Ottawa, were hit harder than others. Not surprisingly then, slightly more volunteer departments noted that their departments were not affected by community power outages. Most respondents who were directly affected by the power outage saw a dramatic increase in their number of runs (up to a 400 percent), plus an increase in telephone calls and walk-ins. At the same time, many experienced a total loss or severe decrease in water pressure and availability.

Naturally, the more extensive the power outage was in a given community, the more taxed the fire department was. Some respondents who were severely affected noted that the events put their emergency plans and mutual aid systems to the test – usually passing, but sometimes identifying areas that need improvement.

In addition to the number of calls, the survey pinpoints more than 30 specific types of duties related to emergencies, community assistance and critical infrastructure protection that fire and EMS personnel undertake in a major power outage.

- Elevator rescue
- Subway rescue
- Fire suppression
- Carbon monoxide calls
- Hazard calls (e.g. reports of unsafe practices)
- Traffic accidents
- Welfare checks at hospitals, senior citizen homes, day care centers, prisons
- Welfare checks at nuclear power plants and local industries that present specific dangers (e.g. - use hydrogen furnaces, large quantities of acid, require cooling systems)
- Providing power to critical care or at-risk facilities

- Providing power to critical local government facilities
- Repairing generators at critical facilities
- Distributing bottled water to the community
- Providing water for livestock
- Finding or offering the community restrooms, showers and food
- Providing critical services and communication for the family of fire service personnel
- Opening the station as a “cooling centers” (or warming centers in the winter), particularly to those at-risk
- Setting up emergency shelters for elderly and families with small children
- Offering mothers a place to use electric breast pumps
- Offering refrigeration and distributing ice to the community for medications (e.g. insulin)
- Assisting those who are dependent on breathing treatments
- Helping the elderly and others up or down stairs
- Reassuring community members, answering informational calls (both in and out of the affected areas)
- Making public service announcements on the truck’s PA system
- Assisting law enforcement with security patrols
- Assisting law enforcement with traffic direction
- Providing generators at large intersections to run traffic lights
- Supplying equipment and personnel to neighboring communities
- Serving as emergency management lead and/or participating in local EOCs
- Assisting stranded travelers, and providing information and assistance to those who were unable to contact family
- Providing back-up to over-loaded hospitals and private health care providers
- Reassignment of clerical support staff to assist in other areas

Independent Power Supply

“We became a haven for those needing power.”

Almost all of the respondents reported that their 9-1-1 and dispatch centers had an independent emergency power supply. However, most respondents reported that only a fraction, if any, of their stations had an independent power supply, with volunteer stations reporting the lowest percentage of departments with independent power. Many maintenance facilities were reported as not having sufficient or any auxiliary power.

Those with generators in their facilities reported mixed adequacy of their equipment. Responses show that many respondents with new generators, or generators able to run the station at full capacity, acquired them as part of Y2K planning or were included in new building construction. The older and/or smaller generators that many use were able to meet basic needs but are not sufficient to run all circuits of a modern firehouse. Additionally, those using military surplus equipment reported difficulty with maintenance issues.

The overwhelming majority of those who had no or insufficient generators attributed the situation to a lack of funding, either to purchase the generators or to retrofit older stations. Respondents noted

their inability to obtain grants or use grant money for generators and histories of generators falling victim to local budget cuts.

In some cases, the lack of an independent power supplies at other sites further tapped firehouse resources. A number of respondents noted the need for the fire service to provide portable generators to local government buildings, hospitals and critical care facilities, community centers, utility facilities and private businesses whose lack of power presented a public danger.

Fire Fighting Water Supply

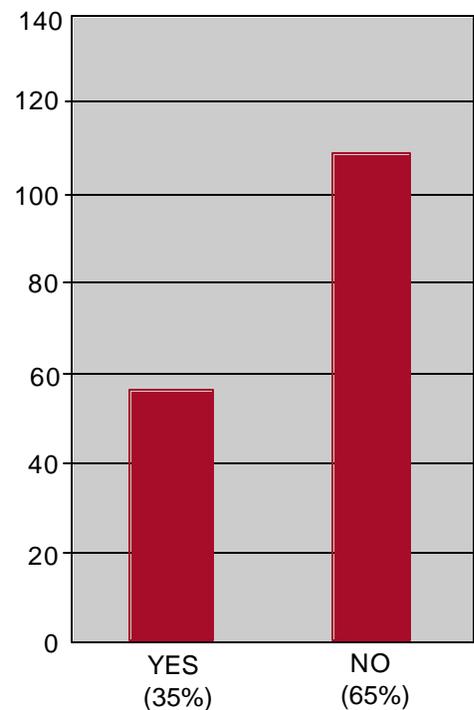
“We were ready to draft water from our city pool if needed...”

“The big cities sometimes think they don’t need the help from the small towns, but the reality is we’re all in this together.”

Thirty-five percent of the respondents affected by the power outage cited that their fire fighting water supply had been affected. Some respondents reported a water pressure as low as 10psi. The fire service met this challenge by using both local and neighboring community’s tankers, gravity fed storage tanks, emergency generators to run pumps and identifying local water resources (lakes, rivers, community pools, etc.) that could be drafted if the need arose.

Mutual aid plans played a big role in ensuring fire suppression needs were met; this frequently meant that smaller or rural companies coming to the aid of city departments dependent on hydrant systems. The city of Cleveland was hit particularly hard as large portions of the city and suburbs experienced a total loss of water. The department was able to continue fire suppression operations by activating a state-wide assistance plan that brought in takers and personnel from neighboring departments, most of which were volunteer departments.

Was your community water supply for fire fighting affected (hydrant system, water for tanker/tenders, etc.)? (Responses only from individuals affected by the blackout).



EMS Response

“We took a proactive approach to minimize the possible incidents.”

Forty-five percent of those who were directly affected by the power outage noted an increase in EMS calls while the power was out. In New York City, EMS crews answered 5,000 calls during the hours of the outage; however, the significance of the increase varied by location.

Respondents reported that assisting those who require home oxygen or other breathing treatments seemed to account for a majority of the increased call volume. Increases were also attributed to heat and anxiety-related ailments. News reports suggest that anxiety-related ailments likely contributed to increased EMS calls and hospital volume in New York and some areas of New Jersey. It is important to consider the possible far-reaching effects of anxiety. A small number of respondents outside of the blackout region noted their role in allaying citizen's fears, and at least one respondent not directly affected by the outage noted an unexplained increase in EMS calls.

The statistical majority of respondents affected by the power outage did not see any increase, or saw only a slight increase in EMS calls. This may be attributed to advanced planning and the proactive approach undertaken by many fire departments. The survey indicates that many departments kept additional ALS units on call during an outage, undertook frequent welfare visits, provided fans and generators to at-risk sites, provided ice/refrigeration to keep medications (e.g. insulin) cooled, provided water to the community and opened their station to community members with critical needs.

Impact on Emergency Operations

“Our apparatus, 26 companies, were continually redirected after each call to another response, never returning to the firehouse.”

Less than a quarter of the respondents affected by the outage reported that the loss of electricity had an impact on fire operations. However, significantly elevated call volume, particularly in the initial stages of the power outage, caused many departments affected by the northeast power loss to have all, or almost all, of their apparatus out of the station for several hours.

Most respondents attributed the increase in call volume to automatic fire and carbon dioxide detectors that created false alarms when the power went out or as a result of power surges. Others reported smoke detectors set off by candles and lanterns, as well as smaller fires attributed to open flames, power surges and cooking surfaces that were mistakenly left on when the power went out.

While these incidents are draining on both equipment and personnel, some departments faced greater challenges; 21 percent of the respondents affected by the blackout reported an impact on emergency fire operations. Several respondents accounted for numerous structure fires, including one respondent who noted 65 working structural fires during the northeast outage, and another reporting four concurrent, multiple-alarm fires.

The survey explored the contribution of candles in fire activity. While some reported candles as the cause of fires, few identified candles as a major problem. Many fire departments reported their engagement in ongoing public education programs promoting the use of flashlights in power outages.

Procedures for Recalling Off-Duty or Volunteer Personnel

“If paging system is somehow disabled, off-duty personnel will secure their homes and family, and report their availability for assignment.”

“If we had to, we would send someone after them.”

Additional personnel is generally called to duty or put on standby in affected areas of a power outage; however, to what extent varies on the degree and duration of the outage. The survey shows that during the recent Northeast blackout, a number of respondents beyond the affected areas initially called additional personnel to duty or standby in the event the power outage continued to spread or was found to be the result of terrorist activity.

Many respondents cited solid planning and a high level of dedication to serve when answering questions about communicating with their personnel who may be without power in the stations or at their homes. Almost every respondent noted the use of battery, generator or satellite-supported technology, with multi-layered contingency plans to back up more modern methods of communication. Pagers (battery operated or supported by emergency powered dispatch centers) were most frequently mentioned, followed by cell and land-line telephones.

Respondents most frequently reported the following means of communicating with their personnel during power outages:

- pagers
- cell phones
- land-line telephones (calling trees, reverse 9-1-1, etc.)
- two-way radios/HAM radios
- standard operating procedures and guidelines for automatic reporting
- local radio station announcements
- air horns
- central sirens powered by generators/truck sirens
- in person/door-to-door

While most departments affected by power outages in the recent past had no problems with their communication systems, some experienced problems with cell phone service availability and recharging of batteries during extended power outages. Again, solid contingency plans kept these departments operational.